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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

First Named Applicant: Khanna) Art Unit: 2652
Serial No.: 10/661,273)
Filed: September 11, 2003) Examiner: Renner
For: METHOD AND APPARATUS FOR LIMITING SHOCK DAMAGE TO HARD DISK DRIVE DURING OPERATION) HSJ920030120US1
) September 28, 2005
) 750 B STREET, Suite 3120
) San Diego, CA 92101
)

APPEAL BRIEF

Commissioner of Patents and Trademarks

Dear Sir:

This brief is submitted under 35 U.S.C. §134 and is in accordance with 37 C.F.R. Parts 1, 5, 10, 11, and 41, effective September 13, 2004 and published at 69 Fed. Reg. 155 (August 2004). This brief is further to Appellant's Notice of Appeal filed herewith.

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(1) Real Party in Interest

The real party in interest is Hitachi Global Storage Technologies, Netherlands, B.V.

(2) Related Appeals/Interferences

No other appeals or interferences exist which relate to the present application or appeal.

(3) Status of Claims

Claims 1 and 3-23 are pending, of which Claims 8, 16, and 23 have been withdrawn from consideration. Claim 2 is canceled. The final rejections of Claims 1, 3-7, 9-15, and 17-22 are hereby appealed.

(4) Status of Amendments

An amendment adding the word "substantially" to Claim 1 as suggested by the examiner has been submitted and presumably will be entered for appeal.

(5) Concise Explanation of Subject Matter in Each Independent Claim, with Page and Figure Nos.

As an initial matter, it is noted that according to the Patent Office, the concise explanations under this section are for Board convenience, and do not supersede what the claims actually state, 69 Fed. Reg. 155 (August 2004), see page 49976. Accordingly, nothing in this Section should be construed as an estoppel that limits the actual claim language.

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Claim 1 recites a hard disk drive that has a base (reference numeral 12, figure 1, page 4, line 16), a cover (14, id.) covering the base, and a rotatable data storage disk (20, id., line 19) supported on the base. An actuator (24, id.) is movably mounted within the base and an assembly that includes a slider supported by a suspension (26 and 28, figure 1, page 4, lines 20-22) is supported by the actuator. At least one motion limiting element (e.g., the indent 32 or rib 34, figure 1, page 5, lines 3-10) is positioned to block shock-induced motion of the assembly when the slider is operating in at least an active region of the disk. The motion limiting element is spaced from the suspension such that motion of the suspension away from the disk in the event of a shock when the slider is operating in the region is constrained by the motion limiting element, and more specifically a distance between the motion limiting element and the assembly is established to constrain movement of the suspension away from the disk such that an air bearing between the slider and disk substantially is not disrupted, page 5, lines 16-24.

Claim 9 sets forth a hard disk drive with a motion limiting element, supra, mechanically constraining movement of a suspension away from a disk in the event of a mechanical shock to the disk drive while operating at least in a protected region of the disk such that an air bearing between a slider supported by the suspension and the disk is not substantially disrupted, supra.

Claim 17 recites a data storage device that has a data storage medium (such as the disk, supra) and a data transfer element (such as the slider, supra) that is juxtaposed with the medium for transferring data therebetween. Means (such as the indent 32 and/or rib 34, supra) are provided for mechanically constraining movement of the data transfer element away from the data storage medium in the event of a mechanical shock to the device while operating in a protected region of the medium such that an air bearing surface is not disrupted by the movement of the data transfer element, supra.

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(6) Grounds of Rejection to be Reviewed on Appeal

- (a) Claims 1, 3-5, 9-13, 15, and 17-21 have been rejected as being anticipated by Onda, USPN 6,417,991.
- (b) Claims 1, 3, 6, 7, 9-11, 14, 15, 17-19, 22, and 23 have been rejected under 35 U.S.C. §102 as being anticipated by Kuroda, JP-03168985.
- (c) Claims 1, 3-7, and 17-22 have been rejected under 35 U.S.C. §112, second paragraph as being indefinite.

(7) Argument

As an initial matter, it is noted that according to the Patent Office, a new ground of rejection in an examiner's answer should be "rare", and should be levied only in response to such things as newly presented arguments by Applicant or to address a claim that the examiner previously failed to address, 69 Fed. Reg. 155 (August 2004), see, e.g., pages 49963 and 49980. Furthermore, a new ground of rejection must be approved by the Technology Center Director or designee and in any case must come accompanied with the initials of the conferees of the appeal conference, id., page 49979.

Additionally, the prior art issues presented here are substantially the same as those already considered by the examiner. Accordingly, it would be inappropriate to churn prosecution by reopening simply because the examiner is faced with Board review. The appropriate responses thus include allowance or the submission of an Examiner's Answer to the Board. Should the examiner wish to lodge a new ground of rejection, it is suggested he do so in an Answer, with the requisite approval of the Group Director, rather than reopen

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prosecution. This way, the Group Director can be made better aware of the conduct of prosecution within his group.

(a) To support an anticipation rejection, every claim element must be taught or inherent in a single prior art reference, Manual of Patent Examining Procedure (MPEP) §2131. For a property or element to be "inherent" in a prior art reference, the reference *necessarily* must have the property or element, MPEP §2112.

Here, none of the relied-upon references teach or suggest establishing the distance between their respective motion limiting elements and respective suspension assemblies such that when the suspension assemblies move during shock, the ABS is not disrupted, substantially or otherwise. The examiner alleges that each reference teaches this but not surprisingly comes up blank in identifying any support whatsoever for his allegations. Since it is not precluded, based on their teachings, that in each reference the ABS is disrupted, it cannot be inherent that any relied-upon reference satisfies the claims. Absent explicit teachings or properly established inherency, the rejections fall.

Indeed, Onda, for instance, appears to concede disruption of the ABS at, e.g., the eighth sentence of the abstract:

"even when the stored resilience *causes the tip end of the suspension to collide against the disk*, a smaller impact of the slider against the disk *may* allow less damage to the disk or slider" (emphasis mine).

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In other words, Onda explicitly envisions a total disruption of the ABS, simply hoping that its invention "may" result in less damage than otherwise would occur from a total disruption. With this explicit front-page teaching of Onda in mind, it strains reason to allege, as the rejections do, that Onda "teaches" the opposite, e.g., Claim 1, which requires establishing the distance between a motion limiting element and the assembly so as to constrain movement of the suspension away from the disk such that the ABS is not disrupted. Whatever else the relied-upon elements 33 and 38 of Onda do, according to Onda they do not function as the motion limiting element of, e.g., Claim 1. Stated differently, the configuration of the Onda device is not established to constrain movement of the suspension away from the disk such that the ABS is not disrupted in the presence of shock, but rather to limit disk damage in the event of an envisioned total breakdown of the ABS.

The examiner has responded to the above points by a seeming irrelevancy, namely, by alleging that "not even [the claimed] motion limiting elements can prevent all disruption of the ABS." The point, of course, is not whether the claimed elements prevent even the smallest disruptions of the ABS, no matter how minute; the point is that unlike the present claims, in Onda the ABS is admittedly totally destroyed.

The examiner then concocts an allegation that is directly contradictory to the explicit teachings of Onda detailed above. Specifically, on the top of page 11 he alleges that in both references, the distances between the suspensions and the relied-upon motion limiting elements "establish a range of ABS values that are not substantially disrupted due to the presence of the motion limiting elements a selected distance from their respective suspension assemblies", despite the precisely opposite teaching of Onda. Moreover, he omits any further recitation of Claim 1 (the fact that the motion limiting element is distanced from the suspension sufficiently to prevent ABS disruption in the presence of mechanical shock) because once "mechanical shock"

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must be addressed, so must the explicit teaching of Onda that its ABS is destroyed in its presence, and that might inconveniently lead to a conclusion of patentability.

(b) The Japanese reference contains no English language teachings at all, but only drawings that are silent as to air bearing surfaces being disrupted or not. Accordingly, there is no evidence of record that this reference achieves, e.g., Claim 1 or that it is another reference, like Onda, which simply hopes to limit damage in the event of a total ABS disruption. Alleging that Kuroda teaches the claims thus is predicated on a finding of "fact" for which no evidence exists. When an agency makes a finding of fact without evidentiary support, it is acting arbitrarily and capriciously, Administrative Procedures Act, under which rubric the Patent Office now falls, Dickinson v. Zurko, 527 U.S. 150 (1999). An ultimate legal conclusion based on an unsupported finding of fact must be reversed.

(c) In an unusual twist, previous Claim 1 and Claim 17 have been rejected as being indefinite for *not* reciting "substantially". It will be assumed that the broadening amendment to Claim 1 adding the word "substantially" will be entered for this appeal; if not, the comments below regarding Claim 17 apply to Claim 1 as well.

The indefiniteness rejection is predicated on an allegation that by omitting the word "substantially", Claim 17 is "misdescriptive" of the disclosure. Manifestly it is not. While the summary and Claims 1 and 9 indeed support a broad recitation in which the ABS is said to be not "substantially" disrupted, characterizing the invention without using the term "substantially" is not "misdescriptive" of a disclosure which states, on

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page 5, lines 19-21, that "the distance "C" preferably is sufficiently small that in the event of a shock, the suspension 26 remains close enough to the associated disk 20 to avoid disrupting the air bearing between the slider 28 and disk 20."

Although not appearing in the Section 112 portion of the Office Action, it appears to be the examiner's contention on the bottom of page 10 that the present invention cannot prevent "all" disruption of the ABS, presumably meaning that "some" disruption must occur in the presence of shock. First, this argument assumes something, once again, without any evidence. It is mere conjecture that ABS disruption of some sort must always occur. Second, it has not been shown that the skilled artisan would understand, by the prohibition against ABS "disruption", that absolutely no motion of the slider toward the disk is permitted, which evidently appears to be what the examiner is trying to postulate. Once again, the rejection is based on not one but two unsupported if implied findings of "fact", and must therefore be reversed.

Respectfully submitted,



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APPENDIX A - APPEALED CLAIMS

1. A hard disk drive, comprising:
 - a base;
 - a cover covering the base;
 - at least one rotatable data storage disk supported on the base;
 - at least one actuator movably mounted within the base;
 - at least one assembly supported by the actuator, the assembly including a slider supported by a suspension; and
 - at least one motion limiting element positioned to block shock-induced motion of the assembly when the slider is operating in at least an active region of the disk, the motion limiting element being spaced from the suspension such that motion of the suspension away from the disk in the event of a shock when the slider is operating in the region is constrained by the motion limiting element, wherein a distance between the motion limiting element and the assembly is established to constrain movement of the suspension away from the disk such that an air bearing between the slider and disk substantially is not disrupted.
3. The disk drive of Claim 1, wherein both the cover and the base are formed with respective motion limiting elements.
4. The disk drive of Claim 1, wherein the motion limiting element is established at least in part by an indent in the cover depending down from a plane defined by the cover.
5. The disk drive of Claim 1, wherein the motion limiting element is established at least in part by a rib in the base rising up from a plane defined by the base.
6. The disk drive of Claim 1, wherein the disk defines a data storage area and the motion limiting element is arcuate shaped across substantially the entire data storage area of the disk.
7. The disk drive of Claim 1, wherein the disk defines a data storage area and the motion limiting element extends only across a portion of the radius of the data storage area of the disk.
8. The disk drive of Claim 7, wherein the motion limiting element is juxtaposed with and separate from a load-unload ramp of the disk drive.
9. A hard disk drive having a motion limiting element mechanically constraining movement of at least one suspension of the disk drive away from a disk of the disk drive in the event of a mechanical shock to the disk drive while operating at least in a protected region of the disk such that an air bearing between a slider supported by the suspension and the disk is not substantially disrupted.
10. The hard disk drive of Claim 9, comprising:
 - a base;

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a cover covering the base; and
at least one actuator movably mounted within the base, the suspension being mounted on an end of the actuator.

11. The disk drive of Claim 10, wherein both the cover and the base are formed with respective motion limiting elements.

12. The disk drive of Claim 10, wherein the motion limiting element is established at least in part by an indent in the cover depending down from a plane defined by the cover.

13. The disk drive of Claim 10, wherein the motion limiting element is established at least in part by a rib in the base rising up from a plane defined by the base.

14. The disk drive of Claim 10, wherein the disk defines a data storage area and the motion limiting element is arcuate shaped across substantially the entire data storage area of the disk.

15. The disk drive of Claim 10, wherein the disk defines a data storage area and the motion limiting element extends only across a portion of the data storage area of the disk.

16. The disk drive of Claim 15, wherein the motion limiting element is juxtaposed with a load-unload ramp of the disk drive.

17. A data storage device, comprising:
at least one data storage medium;
at least one data transfer element juxtaposed with the medium for transferring data therebetween; and
means for mechanically constraining movement of the data transfer element away from the data storage medium in the event of a mechanical shock to the device while operating in a protected region of the medium such that an air bearing surface is not disrupted by the movement of the data transfer element.

18. The data storage device of Claim 17, comprising:
a base;
a cover covering the base; and
at least one actuator movably mounted within the base, the data transfer element being mounted on an end of the actuator.

19. The data storage device of Claim 18, wherein both the cover and the base are formed with respective means for mechanically constraining.

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20. The data storage device of Claim 18, wherein the means for mechanically constraining is established at least in part by an indent in the cover depending down from a plane defined by the cover.

21. The data storage device of Claim 18, wherein the means for mechanically constraining is established at least in part by a rib in the base rising up from a plane defined by the base.

22. The data storage device of Claim 18, wherein the means for mechanically constraining is arcuate shaped across a radial portion of the data storage medium.

23. The data storage device of Claim 18, wherein the means for mechanically constraining extends only across an outer radial portion of the data storage medium.

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APPENDIX B - EVIDENCE

None (this sheet made necessary by 69 Fed. Reg. 155 (August 2004), page 49978.)

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APPENDIX C - RELATED PROCEEDINGS

None (this sheet made necessary by 69 Fed. Reg. 155 (August 2004), page 49978.)

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